Capstone Final Report Template

Example Project: Smart Water Fountain

Instructions:

This template outlines the required content for your final capstone report. Your report body must not exceed 10 pages, single-spaced, with 1-inch margins and 11 pt Cambria font. Use justified alignment. You may use unlimited appendices to include supporting material (figures, sketches, data tables, calculations, etc.).\

Please consult with your project mentor. Some sections may make sense to discuss topics in a certain way depending on your project. For example some data science projects may be more interested in “State of the Art” than “Codes and Standards” therefor they may decide to discuss more project relavant information.

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Capstone 2 - Final Project Report
Florida Polytechnic University
Spring 2026

Project Title: [The Design and Development of a Smart Water Fountain]

Team Name: [Insert Team Name]

Course: EML 4501C / COP 4935 / EEL 4914 / IDC 4942

Submitted by
[Member 1 – Discipline]
[Member 2 – Discipline]
[Member 3 – Discipline]
[Member 4 – Discipline]
[Member 5 – Discipline]
…

Submitted to
[Instructor Name]

Date
[Submission Date]

1. Introduction (Approx. 0.5–1 page)

- Summarize the design problem and project motivation.

- Briefly describe the customer/client and the need for a Smart Water Fountain.

- Highlight major design and prototyping milestones.

- Introduce the scope of the report.

2. Customer Needs, Objectives, and Constraints (Approx. 1–1.5 pages)

2.1 Customer Needs

- Who is the customer/end-user?

- What pain points or requirements were shared during early meetings or surveys?

2.2 Design Objectives

- Translate needs into specific, measurable objectives.

- Examples: “Dispense 500 mL in under 5 seconds,” “Log TDS with ±5% accuracy.”

2.3 Functional & Non-functional Requirements

- Functional: What the system must do (dispense, sense, communicate).

- Non-functional: Reliability, aesthetics, power limits, noise level, etc.

2.4 Constraints

- Timeframe, budget, ADA compliance, parts availability, etc.

3. Concept Generation and Alternatives Analysis (Approx. 2 pages)

3.1 Literature and Product Review
- Summarize 5–10 relevant existing products, standards, or patents.

3.2 Concept Generation
- Briefly explain idea generation process (e.g., morphological chart, brainstorming).

- Include 2–3 example concepts with labeled sketches (figures).

3.3 Evaluation and Selection
- Discuss your selection criteria and weighted decision matrix (appendix).

- Describe the tradeoffs made and justify the final concept.

3.4 Flowchart of Design Process
- Include a high-level design process flow diagram.

3.5 Functional Decomposition
- Provide a hierarchical breakdown of the system.

4. Applicable Codes and Standards (Approx. 0.5–1 page)
- List applicable standards (e.g., ADA, NSF/ANSI, IEEE Bluetooth).

- Explain how your team ensured compliance.

5. Prototyping and Design Details (Approx. 2 pages)

5.1 Proof of Concepts (POCs)
- Describe individual modules tested (e.g., valve, display, sensors).

5.2 Design Implementation
- Include CAD renderings, wiring diagrams, and design schematics.

5.3 Alpha/Beta Prototypes
- Describe key system integrations, changes from earlier versions, and how feedback informed revisions.

6. Testing and Evaluation (Approx. 1 page)

6.1 Testing Methods
- Describe how you tested flow rate, sensor accuracy, Bluetooth reliability, etc.

6.2 Results Summary
- Include performance metrics vs. design objectives.

- Address success/failure of individual features.

7. Risk Assessment and Mitigation (Approx. 0.5 page)
- List major project risks identified early on (e.g., leakage, inaccurate readings).

- Describe how you mitigated or addressed each.

8. Conclusions and Future Work (Approx. 1 page)

8.1 Summary
- Recap the major accomplishments and features.

8.2 Lessons Learned
- What worked well? What would you change?

8.3 Future Development
- Describe what could be improved in future versions (e.g., cloud dashboard, solar power).

8.4 Broader Impacts
- Sustainability, health, or community impact.

9. Individual Contributions (Required, not part of 10-page limit)

Provide a table summarizing the percentage contribution of each member. Detailed 1-page reflections per team member go in Appendix 5.

Team Member	Contribution
Jordan Reynolds	30%
Priya Desai	25%
Luis Hernandez	20%
Emma Nguyen	25%

Appendix 1: Full List of Customer Needs, Objectives, and Requirements

Appendix 2: Concept Sketches and Evaluation Matrices

Appendix 3: Prototyping Images, CAD Files, Pseudocode

Appendix 4: Patent Research, Safety and Risk Tables

Appendix 5: Individual Contribution Statements